Discourse Analysis in French-Speaking Individuals with Aphasia and Primary Progressive Aphasia: Assessing Correct Informativity Units and Developing Preliminary Normative Data in French

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Introduction and aims

Aphasia and primary progressive aphasia affect the ability to converse with others. People with aphasia (PWA) and primary progressive aphasia (PWPPA) often mention conversation as an essential outcome for language recovery (Wallace et al., 2017; Volkmer et al., 2018). However, speech and language therapists lack reliable measure of conversation outcomes. Discourse analysis is a method enabling speech and language therapists to assess connected speech, determine treatment generalization and appreciate the effect of any intervention on conversation (Leaman & Edmonds, 2019).

Discourse analysis is a crucial method for evaluating language production in PWA) and PWPPA, offering insights that go beyond single-word or sentence-level assessments. One established approach involves quantifying correct informativity units (CIUs), as introduced by Brookshire and Nicholas (1993), to measure how much relevant and meaningful information is conveyed in spontaneous or semi-spontaneous speech. While normative data for CIUs are available in English, validated norms in French are lacking, limiting the clinical utility of discourse analysis in French-speaking populations.

Additionally, language assessment tools, and by extension, normative data, are primarily developed in English. Clinicians and researchers acknowledge that normative benchmarks are not directly transferable across languages, cultures, or ethnic groups. Also, the reference data from Nicholas and Brookshire (1993) is now three decades old, raising questions about its current clinical relevance.

This study aims to apply CIU analysis to French-speaking individuals with aphasia and primary progressive aphasia, and to compare their performance to that of neurotypical controls. By doing so, we will gather preliminary normative data for French speakers on connected speech.

Methods

We aim to recruit 20 French-speaking individuals with aphasia and fifty neurotypical

controls. Participants will be recruited on two different sites : Lausanne's university hospital (CHUV) and Geneva's university hospital (HUG). Additionally, we will recruit individuals with PWPPA, representing each clinical variant (semantic, non-fluent/agrammatic, and logopenic). Now, data has been collected for 10 PWA and 10 neurotypical controls.

Connected speech samples will be transcribed and analysed for CIU-related measures, including total number of words, number of words per minute for the assessment of fluency, percentage of correct information unit for the assessment of informativity, and number of CIU per minute for the assessment of informative fluency.

Various picture description tasks will be administered to expand the dataset and support more comprehensive normative comparisons. These include:

Coloured picture descriptions:

- *Le Quai de Gare* (Ansermet & Genillod, 2008)
- An AI-generated image from ChatGPT

Black and white line-drawn picture descriptions:

- Two images from Nicholas & Brookshire (*The birthday party, 1987; firemen, 1992*)
- One image from the Comprehensive Aphasia Test (Swinburn et al., 2004)

Picture sequences:

- Black and white line drawings (The Broken Window by Menn et al., 1998; The Refused Umbrella by AphasiaBank)
- Coloured sequences from the Grémots battery (a standard aphasia battery in French, though without normative data) (Bézy et al., 2016)

Semi-spontaneous speech tasks:

- Talking about hobbies
- Describing weekend plans
- Summarizing the last movie watched

Video-based summary:

- A short black-and-white film featuring Charlie Chaplin, from the *Montréal Évaluation de la Communication (MEC)* (Joanette et al., 2004)

Participants are instructed to speak for at least 60 seconds per task, with a visible timer to support timing. During semi-spontaneous tasks, prompts will be provided by the speech and language therapist as needed.

All samples will be analysed by speech and language therapists from the French-speaking region of Switzerland. Interjudge reliability will be assessed by having an additional therapist review the initial analyses.

Results

Analyses will focus on:

- Differences in CIU production between individuals with aphasia and neurotypical controls
- Differences in CIU production between individuals with primary progressive aphasia and neurotypical controls
- Comparisons across different picture description tasks
- Identification of potential normative patterns for French-speaking populations

Speech and language therapists will extract the following measures: total number of words, words per minute, percentage of CIUs and number of CIU per minute.

Preliminary data for 10 PWA and 10 neurotypical controls matched with sex, age and socioeconomic status is described in tables 1 to 6. PWA and neurotypical controls were recruited between Geneva and Lausanne's university hospitals.

Discussion

Preliminary findings will contribute to the development of French-language norms for CIU analysis, supporting improved discourse assessment in clinical settings. Additional analyses will explore task-specific differences in informativeness, offering valuable insights into how discourse impairments present in French-speaking individuals with aphasia. Future research will involve larger sample sizes and expanded linguistic analyses to complement CIU-based evaluation.

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